

Amendment

A list of pending claims follows:

1. (currently amended) A waveguide structure for detecting particles comprising a sensing layer of a medium disposed upon a second layer having a refractive index ranging from 1.33 to 1.45, said second layer being disposed upon a third layer of ~~differing~~ refractive index ~~to~~ higher than that of the second layer, ~~in which the structure is being~~ capable of supporting a bulk optical mode in the second layer, the medium ~~is being~~ adapted to trap a target particle having a diameter ranging from 1 to 10 μm that results in a change in an optical property of the sensing layer and the thickness and/or refractive index of the second layer ~~is being~~ such that when light is incident the upper surface of the third layer the optical mode generated in the second layer penetrates ~~selected to control the depth of penetration of the optical mode~~ into the sensing layer ~~and so as~~ to overlap at least a major portion of the particle.

2. (original) A waveguide structure according to Claim 1, further comprising a highly reflective fourth layer disposed between the second layer and the third layer.

3.-4. cancelled

5. (previously presented) A waveguide structure according to Claim 1, in which the thickness of the second layer ranges from 300 nm to 500 nm.
6. (previously presented) A waveguide structure according to Claim 1, in which the second layer comprises silica, an agarose gel, a fluorinated polymer or a polyacrylate.
7. (previously presented) A waveguide structure according to Claim 1, in which the fourth layer comprises a metal or solid dye material.
8. (previously presented) A waveguide structure according to Claim 7, in which the metal comprises zirconium, chromium, aluminum, tantalum or titanium.
9. (previously presented) An optical sensor comprising the waveguide structure of Claim 1, an optical source, means for coupling light from the optical source into the optical mode and means for detecting light scattered or emitted by a particle in the sensing medium.
10. (original) An optical sensor according to Claim 9, further comprising means for detecting changes in the properties of the optical

mode by monitoring properties of light coupled from the waveguide structure.

11. (currently amended) An optical sensor according to Claim 8, in which the particle is a bacterium ~~ranging in diameter from 1 to 10 μm .~~

12. (previously presented) An optical sensor according to Claim 9, in which the wavelength of light emitted by the optical source is 488 nm or 635 nm.

13.-14. cancelled